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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/795,983	03/10/2004	Sung-Ha Kim	46784	2286

1609 7590 09/25/2007

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EXAMINER	
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ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
09/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/795,983	KIM ET AL.	
	Examiner	Art Unit	
	Wei-po Kao	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 5-28* is/are rejected.

7)☒ Claim(s) *3 and 4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/03/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Abstract

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejection - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 15-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For Claim 15, the claimed terms, "the pause time," of Lines 5, 6 and 10 have no antecedent basis.

Claims 16-19 are rejected as being dependent of the rejected claim 15.

Claim Rejection - 35 USC § 103

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1, 2, 6, 7, 8, 20, 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the background of Davies et al, U.S. Publication No 20030185249 in view of the invention of Davies et al, U.S. Publication No 20030185249.

For Claims 1, the background of Davies et al teaches that **a switching control method comprising steps of: receiving the Ethernet frame containing predetermined priority information based on a service class from a source node; buffering the received Ethernet frame in a data buffer classified by a class of service (CoS) corresponding to the priority information** (see Paragraph [0003]).

For Claim 1, the background of Davies et al does not teach that **a switching control method for controlling traffic flow of an Ethernet frame comprising the steps of: comparing a size of data currently buffered in the data buffer with a predetermined threshold value; when the size of data currently buffered in the data buffer is equal to or larger than the threshold value, generating a PAUSE frame containing a value of the CoS; and transmitting the PAUSE frame to the source node.** For Claim 2, the background and invention of Davies et al teach all the limitations except that **the switching control method, wherein the predetermined threshold value is necessary for determining a traffic congestion state.** For Claim 6, the background and invention of Davies et al teach all the limitations except that **the**

switching control method, wherein the PAUSE frame further includes information of a predetermined pause time for which traffic transmission of a corresponding CoS is stopped. For Claim 7, the background and invention of Davies et al teach all the limitations except that **the switching control method, wherein the source node receiving the PAUSE frame stops transmission of an Ethernet frame having a priority of a corresponding CoS for a predetermined time.** For Claim 8, the background and invention of Davies et al teach all the limitations except that **the switching control method, wherein information of the CoS is included in the PAUSE frame and header information of the Ethernet frame.**

For Claim 1, the invention of Davies et al teaches that **a switching control method for controlling traffic flow of an Ethernet frame** (see Abstract, Figures 1-2) **comprising the steps of: comparing a size of data currently buffered in the data buffer with a predetermined threshold value** (see Paragraph [0027]); **when the size of data currently buffered in the data buffer is equal to or larger than the threshold value, generating a PAUSE frame containing a value of the CoS; and transmitting the PAUSE frame to the source node** (see Paragraph [0010] [0052] i.e. according to IEEE 802.3, a PAUSE frame is a standard Ethernet frame with a unique type field, therefore with the 802.1Q prioritization tag, the header of a PAUSE frame contains a value of CoS). For Claim 2, the invention of Davies et al teaches that **the switching control method, wherein the predetermined threshold value is necessary for determining a traffic congestion state** (see Abstract, Paragraph [0027]). For Claim 6 the invention of Davies et al teaches that **the switching control method, wherein the PAUSE frame further includes information of a predetermined pause time for which traffic transmission of a corresponding CoS is stopped** (see Paragraph [0054]). For Claim 7 the invention of Davies et al teaches that **the switching control method, wherein the source node receiving the PAUSE frame stops transmission of an Ethernet frame having a priority of a corresponding CoS for a predetermined time** (see Paragraph [0031-0035]). For Claim 8 the invention of Davies et al teaches that **the switching control method, wherein information of the CoS is included in the PAUSE frame and header information of the Ethernet frame (see Paragraph [0052] [0045] i.e.** according to IEEE 802.3, a PAUSE frame is a standard Ethernet frame with a unique

type field, therefore with the 802.1Q prioritization tag, the header of a PAUSE frame contains a value of CoS).

Claim 20 is an apparatus claim corresponding to the method claim 1, and is therefore rejected under the same reason set forth in this paragraph.

For Claim 21, the the background and invention of Davies et al teach all the limitations except that **the switching apparatus, wherein the switching main module comprises: a switching logic for switching a transmission path of the Ethernet frame between the source node and the destination node; and a memory manager for classifying and storing the Ethernet frame received through the input port, generating the PAUSE frame, and transmitting the generated PAUSE frame to the source node.** For Claim 22, the background and invention of Davies et al teach all the limitations except that **the switching apparatus, wherein the PAUSE frame contains information of a predetermined pause time for which traffic transmission of a corresponding CoS is stopped.**

For Claim 21, the invention of Davies et al teaches that **the switching apparatus, wherein the switching main module comprises: a switching logic for switching a transmission path of the Ethernet frame between the source node and the destination node** (see Paragraph [0049]); **and a memory manager for classifying and storing the Ethernet frame received through the input port, generating the PAUSE frame, and transmitting the generated PAUSE frame to the source node** (see Paragraph [0049] [0052]). For Claim 22, the invention of Davies et al teaches that **the switching apparatus, wherein the PAUSE frame contains information of a predetermined pause time for which traffic transmission of a corresponding CoS is stopped** (see Paragraph [0054]).

The background and the invention of Davies et al are analogous art because they are from same field of endeavor.

At the time of the invention, it would have been obvious to a person ordinary skill in the art to utilize the functionality of 802.1Q prioritization to control (transmitting a special frame such as PAUSE frame) traffic with different priority accordingly.
The motivation would have been that by blocking traffic according to different priority under different required scenarios yields optimal transmission performance since not all traffic are block; only the desired traffic is transmitted.
Therefore, it would have been obvious to combine the background and invention of Davies et al to obtain the claims 1, 2, 6, 7, 8, 20, 21, 22.

10. Claims 5, 26, 27, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the background of Davies et al, U.S. Publication No 20030185249 in view of the invention of Davies et al, U.S. Publication No 20030185249 as applied to claims 1 and 20 above, and further in view of Chen et al U.S. Publication No 20030147347.

For Claim 5, the background and invention of Davies et al teach all the limitations in Claim 1 as disclosed in the paragraph 9 of this office action except that **the switching control method, further comprising the step of: when the size of data currently buffered in the data buffer is equal to or larger than the threshold value, setting a predetermined state flag indicative of a traffic congestion state.**

For Claim 5, Chen et al teach that **the switching control method, further comprising the step of: when the size of data currently buffered in the data buffer is equal to or larger than the threshold value, setting a predetermined state flag indicative of a traffic congestion state** (see Paragraph [0015-16] [0029]).

Claims 26, 27, 28 are apparatus claims corresponding to the method claims 1 and 5, and are therefore rejected under the same reason set forth in this paragraph.

Davies et al and Chen et al are analogous art because they are from same field of providing a method to flow control at the congestion state of an Ethernet network switch.

At the time of the invention, it would have been obvious to a person ordinary skill in the art to implement the functionality of indicating different congestion states and allocate different share of buffer space for transmitting different data with from Chen's invention to Davies'.
The motivation would have been that by doing so, the transmission rate of the high-speed traffic will not be significantly restricted by the low-speed traffic (or the congested one).
Therefore, it would have been obvious to combine Davies et al and Chen et al to obtain the claim 5, 26, 27, 28.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the background of Davies et al, U.S. Publication No 20030185249 in view of the invention of Davies et al, U.S. Publication No 20030185249.

For Claim 9, the background and invention of Davies et al teach all the limitations in claim 1 as disclosed in paragraph 9 of this office action except that **the switching control method, wherein a priority of the CoS associated with voice traffic is higher than that associated with data traffic.** However, examiner takes official notice that assigning voice traffic with higher priority or CoS value than data traffic is well-known and common practice in the art.

At the time of the invention, it would have been obvious to a person ordinary skill in the art to assign a higher priority to a voice traffic than a data traffic.
The motivation would have been that by doing so, the system can dynamic control the flow of communication traffic under different scenarios, thus improve communication performance.
Therefore, it would have been obvious to combine Davies et al and well-known knowledge in the art to obtain the claim 9.

12. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over the background and invention of Davies et al, U.S. Publication No 20030185249 as applied to claim 20 above, and further in view of the background of Lin, U.S. Patent No 6754179.

For Claim 23, the background and invention of Davies et al teach all the limitations in claim 20 as disclosed in paragraph 9 of this office action except that **the switching apparatus, wherein the switching main module further generates a UNPAUSE frame to resume traffic flow of a corresponding CoS when it is determined that the traffic congestion state in each of the data buffers is switched to a normal state on the basis of the reference information, and transmits the generated UNPAUSE frame to the input port coupled to the source node.**

For claim 23, the background of Lin teaches that **the switching apparatus, wherein the switching main module further generates a UNPAUSE frame to resume traffic flow of a corresponding CoS when it is determined that the traffic congestion state in each of the data buffers is switched to a normal state on the basis of the reference information, and transmits the generated UNPAUSE frame to the input port coupled to the source node** (see Column 1 Line 55-67, Column 2 Line 1-3 i.e. since an unpause frame is a pause frame with pause time value of zero, a value of the CoS also presents).

The background and invention of Davies et al and the background of Lin are analogous art because they are from same field of controlling data flow at a network node.
At the time of the invention, it would have been obvious to a person ordinary skill in the art to implement the functionality of UNPAUSE frame to resume the data transmission as described in Davies' invention.
The motivation would have been that by resuming paused transmission on demand yields better transmission performance since no time is wasted for waiting the preset pause time to reach zero.
Therefore, it would have been obvious to combine the background and invention of Davies et al and the background of Lin to obtain the claim 23.

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over the background and invention of Davies et al, U.S. Publication No 20030185249 as applied to claim 20 above, and further in view of the background of Lin, U.S. Patent No 6754179 and Dreyer et al, U.S. Patent No 6724725.

For Claim 24, the background and invention of Davies et al teach all the limitations in claim 20 as disclosed in paragraph 9 of this office action except that **the switching apparatus, wherein the switching main module further generates a UNPAUSE frame corresponding to the CoS when the size of data currently buffered in the data buffer is smaller than a threshold value.**

For claim 24, the background of Lin teaches that **the switching apparatus, wherein the switching main module further generates a UNPAUSE frame corresponding to the CoS when the size of data currently buffered in the data buffer is smaller than a threshold value** (see Column 1 Line 55-67, Column 2 Line 1-3).

The background and invention of Davies et al and the background of Lin are analogous art because they are from same field of controlling data flow at a network node.
At the time of the invention, it would have been obvious to a person ordinary skill in the art to implement the functionality of UNPAUSE frame to resume the data transmission as described in Davies' invention.
The motivation would have been that by resuming paused transmission on demand yields better transmission performance since no time is wasted for waiting the preset pause time to reach zero.
Therefore, it would have been obvious to combine the background and invention of Davies et al and the background of Lin to obtain the limitations of the claim 24.

For Claim 24, the background and invention of Davies et al and the background of Lin teach all the limitations except that **the switching apparatus, wherein the switching main module further generates a UNPAUSE frame corresponding to the CoS when a pause time has expired.**

For claim 24, Dreyer et al teach that **the switching apparatus, wherein the switching main module further generates a UNPAUSE frame corresponding to the CoS when a pause time has expired** (see Abstract, Column 12 Line 48-67, Column 13 Line 1-17).

The background and the invention of Davies et al, the background of Lin and Dreyer et al are analogous art because they are from same field of providing a method of controlling data flow at a network node.
At the time of the invention, it would have been obvious to a person ordinary skill in the art to incorporate Dreyer's automatic flow control mechanism to dynamically pause and unpause the data communication between nodes with Davies' invention.
The motivation would have been that by automatically pause or unpause data traffic yields better communication performance since no resource is wasted waiting for manual commend.
Therefore, it would have been obvious to combine the background and invention of Davies et al to obtain the claim 24.

14. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over the background and invention of Davies et al, U.S. Publication No 20030185249 as applied to claim 20 above, and further in view of Dreyer et al, U.S. Patent No 6724725.

For Claim 25, the background and invention of Davies et al teach that **the switching apparatus, wherein the switching main module further generates a PAUSE frame corresponding to the CoS when the size of data currently buffered in the data buffer is equal or larger than a threshold value** (see Paragraph [0010] [0052] i.e. according to IEEE 802.3, a PAUSE frame is a standard Ethernet frame with a unique type field, therefore with the 802.1Q prioritization tag, the header of a PAUSE frame contains a value of CoS).

For Claim 25, the background and invention of Davies et al do not teach that **the switching apparatus wherein the switching main module further re-generates a PAUSE frame corresponding to the CoS when a pause time has expired.**

For Claim 25, Dreyer et al teach that **the switching apparatus wherein the switching main module further re-generates a PAUSE frame corresponding to the CoS when a pause time has expired** (see Abstract, Column 12 Line 48-67, Column 13 Line 1-17).

The background and the invention of Davies et al and Dreyer et al are analogous art because they are from same field of providing a method of controlling data flow at a network node.
At the time of the invention, it would have been obvious to a person ordinary skill in the art to incorporate Dreyer's automatic flow control mechanism to dynamically pause and unpause the data communication between nodes with Davies' invention.
The motivation would have been that by automatically pause or unpause data traffic yields better communication performance since no resource is wasted waiting for manual commend.
Therefore, it would have been obvious to combine the background and invention of Davies et al to obtain the claim 25.

15. Claims 10, 11, 12, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the background of Davies et al, U.S. Publication No 20030185249 in view of the invention of Davies et al, U.S. Publication No 20030185249, the background of Lin, U.S. Patent No 6754179 and Pope et al, GB Patent Application 2372679.

For Claim 10, the background of Davies et al teaches that **a network switch for controlling traffic flow of an Ethernet frame which is received from at least one source node is transmitted to at least one destination node** (see Paragraph [0002]); **a switching control method comprising steps of: transmitting an Ethernet frame to the destination node from a data buffer according to a corresponding CoS; the data buffer buffering an Ethernet frame based on a service class** (see Paragraph [0003]).

For Claim 10, the background of Davies et al does not teach that **a switching control method for controlling traffic flow of an Ethernet frame which is received from at least one source node is transmitted to at least one destination node, comprising the steps of: comparing a size of data currently buffered in the data buffer with a predetermined threshold value.**
For Claim 11, the background of Davies et al does not teach that **the switching control method, wherein the predetermined threshold value is necessary for determining a traffic congestion state.**

For Claim 10, the invention of Davies et al teaches that **a switching control method for controlling traffic flow of an Ethernet frame which is received from at least one source node is transmitted to at least one destination node** (see Abstract, Figure 1-3), **comprising the steps of: comparing a size of data currently buffered in the data buffer with a predetermined threshold value** (see Paragraph [0027]). For Claim 11, the invention of Davies et al teaches that **the switching control method, wherein the predetermined threshold value is necessary for determining a traffic congestion state** (see Paragraph [0027]).

The background and the invention of Davies et al are analogous art because they are from same field of endeavor.
At the time of the invention, it would have been obvious to a person ordinary skill in the art to utilize the functionality of 802.1Q prioritization to control (transmitting a special frame such as PAUSE frame) traffic with different priority accordingly.
The motivation would have been that by blocking traffic according to different priority under different required scenarios yields optimal transmission performance since not all traffic are block; only the desired traffic is transmitted.
Therefore, it would have been obvious to combine the background and invention of Davies et al to obtain the limitations of the claims 10, 11.

For Claim 10, the background and invention of Davies et al teach the above limitations except that **the step of extracting a payload of a packet/frame and storing the payload of the packet/frame.**

For Claim 10, the Pope et al teach that **the step of extracting a payload of a packet/frame and storing the payload of the packet/frame** (see Abstract, Figure 2).

The background and invention of Davies et al and Pope et al are analogous art because they are from same field of controlling data flow at a network node.

At the time of the invention, it would have been obvious to a person ordinary skill in the art to implement the functionality of processing the header and payload of a data packet/frame separately from the invention of Pope into Davies'.
The motivation would have been that by separating the header from the payload and processing them separately reduces processing power when passing required information to the receiving end.
Therefore, it would have been obvious to combine the background and invention of Davies et al and Pope et al to obtain the limitations of the claim 10.

For Claim 10, the background and invention of Davies et al and Pope et al teach all the limitations except that **the method, wherein when the size of data currently buffered in the data buffer is smaller than the threshold value, generating an UNPAUSE frame having a value of the CoS and information indicating termination of a PAUSE state; and transmitting the UNPAUSE frame to the source node.** For Claim 12, the background and invention of Davies et al and Pope et al teach that **the switching control method, further comprising the step of: allowing the source node receiving the PAUSE frame to stop the traffic belonging to a corresponding CoS** (see Davies et al, Paragraph [0010] [0052]).

For Claim 12, the background and invention of Davies et al and Pope et al do not teach that **a similar UNPAUSE frame can be received to terminate the PAUSE state of traffic belonging to a corresponding CoS.** For Claim 14, the background and invention of Davies et al and Pope et al do not teach that **the switching control method, wherein the information indicative of the termination of the PAUSE state is time information set as a zero pause time.**

For Claim 10, the background of Lin teaches that **the method, wherein when the size of data currently buffered in the data buffer is smaller than the threshold value, generating an UNPAUSE frame having a value of the CoS and information indicating termination of a PAUSE state; and transmitting the UNPAUSE frame to the source node** (see Column 1 Line 55-67, Column 2 Line 1-3 i.e. since an unpause frame is a pause frame with pause time value of zero, a value of the CoS also presents). For Claim 12, the background of Lin teaches that **a**

similar UNPAUSE frame can be received to terminate the PAUSE state of traffic belonging to a corresponding CoS (see Column 1 Line 55-67, Column 2 Line 1-3 i.e. since an UNPAUSE frame is a PAUSE frame with pause time value of zero, a value of the CoS also presents). For Claim 14, the background of Lin teaches that **the switching control method, wherein the information indicative of the termination of the PAUSE state is time information set as a zero pause time** (see Column 1 Line 55-67, Column 2 Line 1-3).

The background and invention of Davies et al, Pope et al and the background of Lin are analogous art because they are from same field of controlling data flow at a network node.
At the time of the invention, it would have been obvious to a person ordinary skill in the art to implement the functionality of UNPAUSE frame to resume the data transmission as described in Davies' invention.
The motivation would have been that by resuming paused transmission on demand yields better transmission performance since no time is wasted for waiting the preset pause time to reach zero.
Therefore, it would have been obvious to combine the background and invention of Davies et al, Pope et al and the background of Lin to obtain the claims 10, 11, 12, 14.

16. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over the background and invention of Davies et al, U.S. Publication No 20030185249, the background of Lin, U.S. Patent No 6754179 and Pope et al, GB Patent Application 2372679 as applied to claim 10 above, and further in view of Ahlfors et al, U.S. Patent No 7061868 and Chen et al U.S. Publication No 20030147347.

For Claim 13, the background and invention of Davies et al, Pope et al and the background of Lin teach all the limitations in claim 10 as disclosed in paragraph 15 of this office action except that **the switching control method, further comprising the step of: transmitting an UNPAUSE frame when the predetermined threshold value is below the congestion state.**

For Claim 13, Ahlfors et al teach that **the switching control method, further comprising the step of: transmitting an UNPAUSE frame when the predetermined threshold value is below the congestion state** (see Abstract, Figure 3).

The background and invention of Davies et al, Pope et al, the background of Lin and Ahlfors et al are analogous art because they are from same field of controlling data flow at a network node.
At the time of the invention, it would have been obvious to a person ordinary skill in the art to implement the functionality of UNPAUSE frame to resume the data transmission once congestion is resolved to Davies' invention.
The motivation would have been that by resuming paused transmission on demand yields better transmission performance since no time is wasted for waiting the preset pause time to reach zero.
Therefore, it would have been obvious to combine the background and invention of Davies et al, Pope et al, the background of Lin and Ahlfors et al to obtain the limitations of the claim 10.

For Claim 13, the background and invention of Davies et al, Pope et al, the background of Lin and Ahlfors et al teach all the above limitations except that **setting predetermined flag information indicative of a traffic congestion state as a value of a traffic normal state.**

For Claim 13, Chen et al teach that **setting predetermined flag information indicative of a traffic congestion state as a value of a traffic normal state** (see Paragraph [0015-0016] [0029]).

The background and invention of Davies et al, Pope et al, the background of Lin, Ahlfors et al and Chen et al are analogous art because they are from same field of providing a method to flow control at the congestion state of an Ethernet network switch.
At the time of the invention, it would have been obvious to a person ordinary skill in the art to combine Ahlfors and Chen's inventions to set the predetermined flag when an UNPAUSE frame is transmitted, which represents the traffic state is normal.

The motivation would have been that by resuming paused transmission on demand such as according to congestion states of the system yields better transmission performance since no time is wasted for waiting the preset pause time to reach zero.
Therefore, it would have been obvious to combine the background and invention of Davies et al, Pope et al, the background of Lin, Ahlfors et al and Chen et al to obtain the claim 13.

17. Claims 15, 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the background of Davies et al, U.S. Publication No 20030185249 in view of the invention of Davies et al, U.S. Publication No 20030185249 and Dreyer et al, U.S. Patent No 6724725.

For Claim 15, the background of Davies et al teaches that **a network switch for controlling traffic flow of an Ethernet frame which is received from at least one source node is transmitted to at least one destination node** (see Paragraph [0002]).

For Claim 15, the background of Davies et al does not teach that **a switching control method for controlling traffic flow of an Ethernet frame which is received from at least one source node is transmitted to at least one destination node, comprising the steps of: comparing a size of data currently buffered in a data buffer based on a service class with a predetermined threshold value; when the size of data currently buffered in the data buffer is equal to or larger than the threshold value, generating a PAUSE frame containing a value of the CoS and information of the pause time; and transmitting the PAUSE frame to the source node.** For Claim 16, the background of Davies et al does not teach that **the switching control method, wherein the predetermined threshold value is necessary for determining a traffic congestion state.**

For Claim 15, the invention of Davies et al teach that **a switching control method for controlling traffic flow of an Ethernet frame which is received from at least one source node is transmitted to at least one destination node** (see Abstract, Figure 1-3), **comprising the steps of: comparing a size of data currently buffered in a data buffer based on a service class with a predetermined threshold value** (see Paragraph [0027]); **when the size of data**

currently buffered in the data buffer is equal to or larger than the threshold value, generating a PAUSE frame containing a value of the CoS and information of the pause time; and transmitting the PAUSE frame to the source node (see Paragraph [0010] [0052] i.e. according to IEEE 802.3, a PAUSE frame is a standard Ethernet frame with a unique type field, therefore with the 802.1Q prioritization tag, the header of a PAUSE frame contains a value of CoS). For Claim 16, the invention of Davies et al teaches that **the switching control method, wherein the predetermined threshold value is necessary for determining a traffic congestion state** (see Abstract, Paragraph [0027]).

The background and the invention of Davies et al are analogous art because they are from same field of endeavor.
At the time of the invention, it would have been obvious to a person ordinary skill in the art to utilize the functionality of 802.1Q prioritization to control (transmitting a special frame such as PAUSE frame) traffic with different priority accordingly.
The motivation would have been that by blocking traffic according to different priority under different required scenarios yields optimal transmission performance since not all traffic are block; only the desired traffic is transmitted.
Therefore, it would have been obvious to combine the background and invention of Davies et al to obtain the limitations of the claims 15, 16.

For claim 15, the background and the invention of Davies et al teach all the limitations except that **allowing a predetermined network unit controlling the traffic flow to start an internal timer and to determine whether the pause time has expired; if the pause time has expired regenerating a PAUSE frame.** For claim 17, the background and the invention of Davies et al teach all the limitations except that **the switching control method,wherein the source node re-stops transmission of the Ethernet frame for a time included in the pause time information.**

For claim 15, Dreyer et al teach that **allowing a predetermined network unit controlling the traffic flow to start an internal timer and to determine whether the pause time has expired; if the pause time has expired regenerating a PAUSE frame** (see Abstract, Column 12 Line

48-67, Column 13 Line 1-17). For claim 17, Dreyer et al teach that **the switching control method,wherein the source node re-stops transmission of the Ethernet frame for a time included in the pause time information** (see Abstract, Column 12 Line 48-67, Column 13 Line 1-17).

The background and the invention of Davies et al and Dreyer et al are analogous art because they are from same field of providing a method of controlling data flow at a network node.
At the time of the invention, it would have been obvious to a person ordinary skill in the art to incorporate Dreyer's automatic flow control mechanism to dynamically pause and unpause the data communication between nodes with Davies' invention.
The motivation would have been that by automatically pause or unpause data traffic yields better communication performance since no resource is wasted waiting for manual commend.
Therefore, it would have been obvious to combine the background and invention of Davies et al to obtain the claims 15, 16, 17.

18. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the background and invention of Davies et al, U.S. Publication No 20030185249 and Dreyer et al, U.S. Patent No 6724725 as applied to claim 15 above, and further in view of the background of Lin, U.S. Patent No 6754179.

For Claim 18, the background and invention of Davies et al and Dreyer et al teach all the limitations in claim 15 as disclose in paragraph 17 of this office action except that **the switching control method, further comprising the step of: when the size of data currently buffered in the data buffer is smaller than the threshold value, generating an UNPAUSE frame in which the pause time for a corresponding CoS is set as "0" and transmitting the UNPAUSE frame to the input port coupled to the source node.** For Claim 19, the background and invention of Davies et al, Dreyer et al and the background of Lin teach all the limitations except that **the switching control method, wherein the UNPAUSE frame is generated in the same data format as a data format of the PAUSE frame.**

For Claim 18, the background of Lin teaches that **the switching control method, further comprising the step of: when the size of data currently buffered in the data buffer is smaller than the threshold value, generating an UNPAUSE frame in which the pause time for a corresponding CoS is set as "0" and transmitting the UNPAUSE frame to the input port coupled to the source node** (see Column 1 Line 55-67, Column 2 Line 1-3). For Claim 19, the background of Lin teaches that **the switching control method, wherein the UNPAUSE frame is generated in the same data format as a data format of the PAUSE frame** (see Column 2 Line 1-3).

The background and invention of Davies et al and the background of Lin are analogous art because they are from same field of controlling data flow at a network node.
At the time of the invention, it would have been obvious to a person ordinary skill in the art to implement the functionality of UNPAUSE frame to resume the data transmission as described in Davies' invention.
The motivation would have been that by resuming paused transmission on demand yields better transmission performance since no time is wasted for waiting the preset pause time to reach zero.
Therefore, it would have been obvious to combine the background and invention of Davies et al, Pope et al and the background of Lin to obtain the claims 18 and 19.

Allowable Subject Matter

19. Claims 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter:

For claim 3 and 4, prior art fails to show alone or in combination that data packets are still being stored in the remaining space of a queue even under congestion state.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kalkunte et al, U.S. Patent No 6031821, Mishra et al, U.S. Publication No 20060164988 and Tanaka, U.S. Publication No 20040170127 are cited to show similar network switch controlling data flow by utilizing 802.3 standard functionalities such as PAUSE frame or CoS with respect to the conditions of buffer status or congestion states.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wei-po Kao whose telephone number is (571)270-3128. The examiner can normally be reached on Monday through Friday, 8:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dong Ton can be reached on 571-272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

W.K.

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